Wisconsin Weatherization Replacement Gas Furnace Checklist

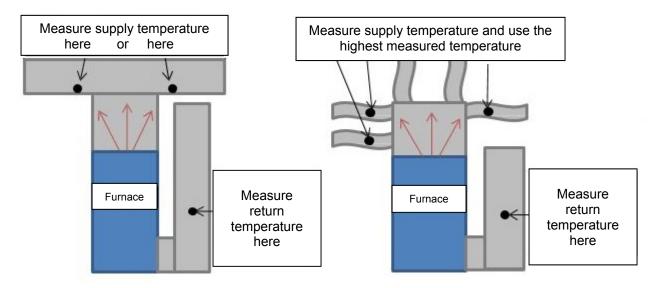


	Customer: _				(Contractor:					
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M				ect is present and				Dedicated circ		aker prop	erlv rated
ADJUSTMENTS	Electrical:			nd anticipator (tl	=			Not applicable			- ,
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¥ ×	Gas Piping:	□ Se	ediment trap pr	esent		ST bonded					
INSPECTION	Air Filter:		ter opening co ter Size:	vered/sealed	☐ Filte	er removes easi	ly w	ith no obstruc	tions		
				d off basement fl	loor. Note:	f not in baseme	nt,	can be on floo	or if approve	ed PMI	
SP				and exhaust pipir	•						
=	General:		•	ums sealed and	-		•				
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		□ Or	pnaned water	heater has prop	er αraπ (se	e p. ∠) ∟		Permit required	a		
Ins	talled and M	easured B	TUs of New	Furnace:							
вτι	Js (high input):		Meas	sured Input (2 cu	ı. ft. of gas)	: <u></u>	M	linutes:	s	econds:	
BTL	Js (low input):		Meas	sured Input (2 cu	u.ft. of gas)	:	M	linutes:	S	econds:	
						•	- '''				
Me	asured Gas	Pressure i	n Inches of	Water Column	n(IWC):		M	lanifold	N	lanifold	
Inpu	ıt (High):		Input	(Low) – if applic	cable:			High):		_ow):	
			Enter test	result. Indicate	e "N/A" if ir	nstallation is a	sna	ace heater			
			Steady State	Efficiency Test					ibution Sta	atic Press	sure
D N	-			r Gas Burning App				□ IW	/C or □ I		Total
	SSE %	O2%	CO PPM	Intake Air °F	Flue *F	PMI AFUE%		18.6.1	Return	Supply	Pressure
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								Low Input			
Ν			Temper	ature Rise			1	Variable			
R.N	Supply °F	Return °F		y – Return)	PMI	PMI Max		Speed	Heating CFM*	Fan Spe	ed Setting
PERFORMANCE	Зирріу Г	Netuin F	(Зиррі	y – Return)	Min	FIVII IVIAX	1	Furnaces	CIWI		
PE								High Input			
								Low Input (if applicable)			
	•		•	*CFM Mea	surement M	lethod: ☐ Plate	Me		Tables [Other:	
	tify the visual in pleted as indica		nd performance	e tests were		rtify the heating e indicated.	sys	stem was insta	alled to my	satisfactio	on on the
7						Customer Signa	ture	e:			
	i iiiiteu							e:			
	Date: Date:										

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Natural Gas and Propane Specifications

Generally accepted ranges, excerpted from the Weatherization Field Guide. Always follow manufacturer's instructions if they differ from listed typical specifications. Examples of temperature rise testing procedures below.



Acceptable Draft Test Readings for Gas Appliances with Respect to Outdoor									
°F	<10°	10°-90°	>90°						
Pa.	-2.5	(°F Out / 40) - 2.75	-0.5						
IWC.	010	(°F Out / 10,000) - 0.011	002						

Typical Ranges for Gas Burning Appliances

Performance Indicator	SSE 80+	SSE 95+
Carbon monoxide (CO) ppm	≤ 100	≤ 100 or PMI
Stack temperature °F	325°- 450°	90°- 120°
Temperature Heat Rise °F	40° - 70°	45° - 70° or PMI
Oxygen (O ₂) %	4 - 9%	4 - 9%
Natural gas pressure output at manifold - Inches of Water Column (IWC)	3.2 - 3.9 IWC	3.2 - 3.9 IWC
Propane pressure output at manifold (IWC)	10-11 IWC	10 – 11 IWC
Steady-state efficiency (SSE)	82 - 86%	95 - 97%
Supply temperature °F	120° - 140°	95° - 140°

Comments:

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Wisconsin Weatherization Replacement Oil Furnace Checklist

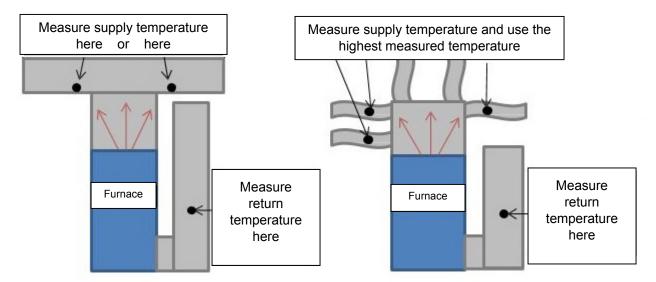


	Customer:					Contractor:						
	Customer:											
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ည	Documents.	□ Wa	rranty and r	manual in en	velope attach			Agency given		ing calcula	ation	
Ä					ss calculation							
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SN				t and anticipa		tat) PMI						
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√ ×			leaks			Purged fuel lines						
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IVIC		ssure III	PSI	water Coll	M	1easured			sured Smo	ke Numbe	er	
IVIE	PMI	ssure m	PSI	easurements Before baro	N s metric damper	Measured		Mea	sured Smo	ke Numbo	er	
	PMI Flue Draft	ssure iii	PSI	Before baro	Metric damper	10 – 15 Pa or		Meas Smoke Spot	sured Smo	ke Numbo	er	
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Fuel Oil Heating System Specifications

Generally accepted ranges, excerpted from the Weatherization Field Guide. Always follow manufacturer's instructions if they differ from listed typical specifications. Examples of temperature rise testing procedures below.



Typical Ranges for Oil Burning Appliances

Typical Italiges is: Sil Balling)
Performance Indicator	Flame Retention
Carbon Monoxide (CO) ppm	≤ 100
Stack Temperature °F	300°- 450°
Oxygen (O ₂) %	5 - 9%
Smoke Number (0-9)	< 1
Oil Pressure Pounds per Square Inch (psi)	100 – 150
Over-fire Draft (Inches of Water Column (IWC))	-0.02 IWC or -5 Pa
Flue Draft (IWC)	-0.04 to -0.01 IWC or -10 to -15 Pa
Steady-State Efficiency (SSE)	≥ 80%

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Comments:

Wisconsin Weatherization Replacement Boiler Checklist



	Customer:						Contrac	tor:				
	Brand:											
Da							Seria					
W	isWAP BID:						WHFAP An					
	eck box, enter t	est resu	ılts or re		number a		inspected	or comp	leted. Indicate "I	V/A" if no	ot applic	
		□Р	notos doc	umenting	g furnace c	onditions a	and manufa	cturer na	meplate provided	to Agenc	y.	
	Dooumonto	□ In	stallation	informati	on sticker	(installer n	ame, phone	e number	, date)			
	Documents:		arranty a	nd manu	al in envel	ope attach	ed to furnac	ce 🗆	Agency given cop	oy of sizir	ng calcula	ation
ပ္		□ D	esign tem	perature	heat loss	calculation	:		BTU per hour			
Z	Electrical:	□ S	ervice dis	connect i	s present a	and operat	ional		Dedicated circuit	and brea	ker prop	erly rated
ADJUSTMENTS	Liectifical.		et heat ar	nticipator	(thermosta	at) PMI			Not applicable			
US	Gas Piping:	□ S	zed for B	TUs of al	l appliance	es 🗆 N	No leaks		Shut off present			
2	Gas Fibility.	□ S	ediment t	rap prese	ent		CSST bond	ed				
8 A	Fuel Oil:		ew Fuel F	ilter [No leak	s 🗆 1	Tank/Lines	comply w	ith NFPA 31 🔲	Purged	Fuel Lin	es
		□ B	oiler eleva	ated off b	asement fl	oor. Note:	If not in bas	sement, c	an be on floor if a	pproved I	PMI.	
ΙΞ					_				y combustibles (G		; Oil NFP	A 31)
EC					-		erly installed		ted and supported			
NSPECTION	General:				Relief Valve				Test holes sealed	d		
=					-	operly PM	I (if applicabl	_	Permit Required			
				m entire :	•				Distribution Flush			
						per code a			Distribution pH:			
- Free	ation I and Town				ater has pr	oper draft	(see p. 2)		Hardness (grains	/gallon):		
	sting Load Tern diation Type:	<i>iinais ar</i> □ Fin	_	-	adiator	□ Bas	ehoard		☐ Other:			
	ear Feet:						rd) Squa	re Feet:		Radiators)		
	asured BTUs of	New Bo							(-			
	Design temperature		°F			ı	Modulating B	oiler Turno	down Ratio (if applica	able):		
	BTUs (input)			Measu	red Input (2	cu. ft. of ga			Minutes:		econds:	
	Nozzle GPH				zle Angle:		- /	0	Nozzle Spray			
Me	asured Gas Pres	sure in	Inches o		-	VC) or Oil	PSI:		. ,	,,		
	Input			Manifold				old (Low):		0	il (PSI):	
Ins	talled Devices: I	ndicate	what wa	s installe	d. Steps i	nust be ta	ken to pre	vent con	densation in non	-conden	sing uni	ts.
	Air Excluding Dev								ter Other:			
	Nye Strainer $\ \square$	Outdoo	r Sensor	(install or	North wa	II) □ Circ	culator Pum	•	HP		GPM	W
	1		•					Size		Setting		Watts
	Adjust to	achieve			d Draft Tes		(see page	2)	Actual Boiler Setup		Veather Down	Design Temp
S N	Aujust to		CO	Ī	Intake	Flue	<u> </u>	AFUE	Outdoor	Silut	DOWII	Temp
ST		$\square O_2$	PPM	Draft	Air °F	Temp °F	SSE %	%	Temp °F			
#	High Input								Boiler Supply			
S	High Input PMI								°F			
MA	Low Input											
PERFORMANCE TESTING	Low Input PMI								Measured Temps °F	Supply	Return	Outdoor
Ē	Low Input Fivii											
<u> </u>	Oil Boiler	s Only:	Overfir	e Draft:		Smo	ke Test #:		Primary Loop (High Input)			
I certify the visual inspection and performance tests were completed as indicated. (High Input) I certify the heating system was installed to my satisfaction on the date indicated.							ction on					
con			·				the date	indicated	•			
					Date			r Signatu			Date	

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Replacement Boiler Specifications (Natural Gas, Propane (LP) and Fuel Oil)

Generally accepted ranges, excerpted from the Weatherization Field Guide. Always follow manufacturer's instructions if they differ from listed typical specifications. Examples of temperature rise testing procedures below.

Acceptable Draft Test Readings for Gas Appliances with Respect to Outdoor										
°F	<10°	10°-90°	>90°							
Pa.	-2.5	(°F Out / 40) - 2.75	-0.5							
IWC.	010	(°F Out / 10,000) - 0.011	002							

Gas: Measure draft halfway between collar and chimney.

Typical Ranges for Gas Burning Appliances

	Typical Ranges for Gas Barring Applications									
Performance Indicator	SSE 80+	SSE 95+								
Carbon monoxide (CO) ppm	≤ 100	≤ 100 or PMI								
Stack temperature °F	325°- 450°	90°- 120°								
Oxygen (O ₂ %)	4 - 9%	4 - 9%								
Natural gas pressure output at manifold - Inches of Water Column (IWC)	3.2 - 3.9 IWC	3.2 - 3.9 IWC								
Propane pressure output at manifold (IWC)	10 - 11 IWC	10 – 11 IWC								
Steady-State Efficiency (SSE)	82 - 84%	95 - 97%								
Supply temperature °F	120° - 140°	95° - 140°								
Return Water Temperature-Non-condensing °F	> 120	N/A								

Typical Ranges for Oil Burning Appliances

Performance Indicator	Flame Retention
Carbon Monoxide (CO) ppm	≤ 100
Stack Temperature °F	300°- 450°
Oxygen (O ₂) %	5 - 9%
Smoke Number (0-9)	< 1
Oil Pressure Pounds per Square Inch (psi)	100 – 150
Over-fire Draft (Inches of Water Column (IWC))	-0.02 IWC or -5 Pa
Flue Draft (IWC)	-0.04 to -0.01 IWC or -10 to -15 Pa
Steady-State Efficiency (SSE)	≥ 80%
Return Water Temperature-Non-condensing °F	> 120

Oil: Measure draft between barometric damper and collar and at over fire.

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Wisconsin Weatherization Repair or Clean and Tune Checklist

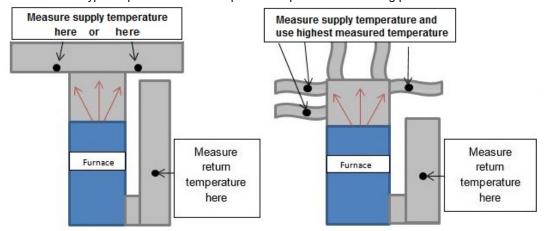


WisWAP BID:		Customer:				Contrac	cto	r:					
System Type:	,												
System Type: Forced Air Bollor Space Heater Other. Clean, inspect, test, and repair. Perform the following inspection procedures and maintenance practices on heating systems as necessary. The goal of these measures is to reduce carbon monoxide (CO), adjust fuel-air mixture, improve steady-state efficiency and verify the operation of safety controls. All drilled holes should be properly sealed after completion of testing. Check Doc, nother test research of the properly sealed after completion of testing. Check Doc, nother test research of the properly sealed after completion of testing. Check Doc, nother test research of the properly sealed after completion of testing. Check Doc, nother test research of the property sealed after completion of testing. Check Doc, nother test research of the property sealed after completion of testing. Check Doc, nother test research of the property sealed after completion of testing. Check Doc, nother test research of the property sealed after completion of testing. Check Doc, nother test research of the property sealed after completion of testing. Check Doc, nother testing the property sealed after completion of testing. Check Doc, nother testing the property sealed after completion of testing. Check Doc, nother testing the property sealed after completion of testing. Check Testing the property sealed after completion of testing. Check Testing the present is a property sealed after completion of testing. Check for dust, sealed number as a property of testing the present is a property of the present. Filter of the present is a property of the present is a property of the present. Filter of the present is a property of the present is a property of the present. The present is a property of the present is a prope	Wis	sWAP BID:			OR	WHEAP Ap	p#	# :					
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Electrical service										oietea.			
Fuel lines/storage tanks No leaks present; Shut off present; Filter or sediment trap is present and clean library Shower Clean Clean										ke recommenda	ations		
Heat Exchanger Clean surface & inspect for leaks; Inform customer & agency if exchanger is cracked Filter Slot/Filters Filter slot with cover is present; Replacement filters/permanent filter present Thermostat Set heat anticipator to amperage measured in control circuit or PMI	MS				•			-					
Heat Exchanger Clean surface & inspect for leaks; Inform customer & agency if exchanger is cracked Filter Slot/Filters Filter slot with cover is present; Replacement filters/permanent filter present Thermostat Set heat anticipator to amperage measured in control circuit or PMI	三		9		•	, отпостот ра				, p. 10001111 01110			
Heat Exchanger Clean surface & inspect for leaks; Inform customer & agency if exchanger is cracked Filter Slot/Filters Filter slot with cover is present; Replacement filters/permanent filter present Thermostat Set heat anticipator to amperage measured in control circuit or PMI	rs.	Air Handler			Clean								
Heat Exchanger Clean surface & inspect for leaks; Inform customer & agency if exchanger is cracked Filter Slot/Filters Filter slot with cover is present; Replacement filters/permanent filter present Set heat anticipator to amperage measured in control circuit or PMI Nozzle Replace Replace		Air Filter			Clean or replac	ce							
Thermostat		Heat Exchange	er				eal	ks; Inform cus	tomer & agen	ncy if exchange	is cracked		
Oil Filter	⋖	_											
Nozzle Replace. Nozzle GHP: Nozzle Angle: ° Spray Type:		Thermostat			Set heat antici	pator to amper	raç	ge measured i	n control circu	uit or PMI			
Nozzle GHP: Nozzle Angle: "Spray Type:		Oil Filter			Replace								
Electrodes		Nozzle			Replace. Nozzle GHP:_	No)ZZ	zle Angle:	° Spr	ray Type:			
Over Fire Draft	⊨	Electrodes											
Over Fire Draft	Z	Transformer			Clean contacts	; Measure volt	taç	ge & replace if	voltage is no	t within PMI			
Over Fire Draft	G L	Burner/Burner	Tube Assembly		•		- · · · · · · · · · · · · · · · · · · ·						
Over Fire Draft	<u>Z</u>												
Over Fire Draft	AT												
Over Fire Draft	뽀	_						neous; Pre-pur	ge type unit,	blower on prior	to ignition		
Over Fire Draft	1		•										
High Limit Control Oil Pump Pressure Measure and adjust PM	0	· ·				-							
Oil Pump Pressure						-			lace if > 250°	(f	00° (bailar)		
Burners		_				-	ec	s adjust or rep	lace II >250	(lumace) or > 1	su (boller)		
Distribution Static Pressure Distribution Static Pressure Manifold Return Supply Air Flow Pressure Supply °F Return °F Total Rise Minimum Maximum Maxi		·	suie				iar	ment flame i	mpingement &	& other flame-in	terference		
Sas Pressure (IWC)	Δ.	Burners											
Sas Pressure (IWC)	3/L	Burner/Manifold	d		No soot, melte	d wire insulation	on	or rust in burn	ner and manif	old area outside	e of firebox		
Input on Label: Dutput on Label: Measured Input: (Clock Meter)	ž	Pilot (if equippe	ed)		Burning, good	ignition, check	S	afety control fo	or gas valve s	shut-off when pi	lot is out		
Steady State Efficiency Test Adjust to Achieve Typical Ranges for Gas Burning Appliances (see page 2) IWC or Pa Total Return Supply Air Flow Pressure		Gas Pressure (IWC)		Input:		_ \	Manifold:					
Steady State Efficiency Test Adjust to Achieve Typical Ranges for Gas Burning Appliances (see page 2) IWC or Pa Total Return Supply Air Flow Pressure	_	Input on La	hali	Output	t on Labol:			Mossured In	out: (Clock M	(lotor)			
I certify the visual inspection and performance tests were completed as indicated. Installer Signature: Printed Name: I certify the heating system was installed to my satisfaction on the date indicated. Customer Signature: Printed Name:	<u>8</u>	iliput oli La									<u> </u>		
I certify the visual inspection and performance tests were completed as indicated. Installer Signature: Printed Name: I certify the heating system was installed to my satisfaction on the date indicated. Customer Signature: Printed Name:	STI	Adjust to Achie				ee page 2)							
I certify the visual inspection and performance tests were completed as indicated. Installer Signature: Printed Name: I certify the heating system was installed to my satisfaction on the date indicated. Customer Signature: Printed Name:	#	SSE %	O2%	CO PPM	Smoke #	Flue °F							
I certify the visual inspection and performance tests were completed as indicated. Installer Signature: Printed Name: I certify the heating system was installed to my satisfaction on the date indicated. Customer Signature: Printed Name:	CE												
I certify the visual inspection and performance tests were completed as indicated. Installer Signature: Printed Name: I certify the heating system was installed to my satisfaction on the date indicated. Customer Signature: Printed Name:	NA												
I certify the visual inspection and performance tests were completed as indicated. Installer Signature: Printed Name: I certify the heating system was installed to my satisfaction on the date indicated. Customer Signature: Printed Name:	2		Tomn	oroturo Dio	•				DMI	Danga			
I certify the visual inspection and performance tests were completed as indicated. Installer Signature: Printed Name: I certify the heating system was installed to my satisfaction on the date indicated. Customer Signature: Printed Name:	요	Supply °F	•	erature Kisi				Minir		_	mum		
completed as indicated. Installer Signature: Printed Name: date indicated. Customer Signature: Printed Name:	PER	- Cupp.y .	. 1010										
		oleted as indicate Installer Signat	d. ture:			date indica Custom	nte ner	<i>d.</i> Signature: _					
Date: Date:		Printed Na	ime:			_ P	rir	nted Name: _					

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Natural Gas and Propane Specifications

Generally accepted ranges, excerpted from the Weatherization Field Guide. Always follow manufacturer's instructions if they differ from listed typical specifications. Examples of temperature rise testing procedures below.



Acceptable Draft Test Readings for Gas Appliances with Respect to Outdoor						
°F	<10°	10°-90°	>90°			
Pa.	-2.5	(°F Out / 40) - 2.75	-0.5			
IWC.	010	(°F Out / 10,000) - 0.011	002			

Typical Ranges for Gas Burning Appliances						
Performance Indicator	SSE 80+	SSE 95+				
Carbon monoxide (CO) ppm	≤ 100	≤ 100 or PMI				
Stack temperature °F	325°- 450°	90°- 120°				
Temperature Heat Rise °F	40° - 70°	45° - 70° or PMI				
Oxygen (O ₂) %	4 - 9%	4 - 9%				
Natural gas pressure output at manifold - Inches of Water Column (IWC)	3.2 - 3.9 IWC	3.2 - 3.9 IWC				
Propane pressure output at manifold (IWC)	10-11 IWC	10 – 11 IWC				
Steady-state efficiency (SSE)	82 - 86%	95 - 97%				
Supply temperature °F	120° - 140°	95° - 140°				

Typical Ranges for Oil Burning Appliances					
Performance Indicator	Flame Retention				
Carbon monoxide (CO) ppm	≤ 100				
Stack temperature °F	300°- 450°				
Oxygen (O ₂) %	5 - 9%				
Smoke Number	< 1				
Oil pressure pounds per square inch (psi)	100 - 150				
Over-fire draft	-0.2 IWC or -0.5 Pa				
Flue draft	-0.4 to -0.1 IWC or -10 to -15 Pa				
Steady State Efficiency (SSE)	≥ 80%				

Comments:			

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